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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/611,133	07/06/2000	Hong Heather Yu	9432-000085	5275

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EXAMINER

CZEKAJ, DAVID J

ART UNIT PAPER NUMBER

2613

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/611,133	Applicant(s) YU, HONG HEATHER	
	Examiner Dave Czekaj	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 July 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Response to Arguments

On page 2, the applicant argues the Yu rejection should be withdrawn since Yu was not published one year before the filing of the patent application. While the applicant's points are understood, the examiner respectfully disagrees. Please note the statute which states that for 102(a) the invention was known before, not one year prior which is found in 102(b). Therefore the rejection has been maintained.

On pages 2-3, the applicant argues that Niikura does not teach the use of a frequency decomposer that generates a low and high frequency signature. While the applicant's points are understood, the examiner respectfully disagrees. See for example Niikura figure 15, wherein the low frequency component is the DC component. The examiner notes that Jafarkhani was relied upon to show the high frequency component as seen in column 3, lines 1-10. Therefore the rejection has been maintained.

On page 3, the applicant argues that Jafarkhani relates to analyzing video in the time domain, not the frequency domain. While the applicant's points are understood, the examiner respectfully disagrees. See for example Jafarkhani figure 1. The examiner notes that the wavelet processing or analyzing is done in the frequency domain. Therefore the rejection has been maintained.

Claim Rejections - 35 USC § 102

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1-17 and 21-22 are rejected under 35 U.S.C. 102(a) as being anticipated by Yu et al. (A Hierarchical Multiresolution Video Shot Transition Detection Scheme), (hereinafter referred to as "Yu").

Regarding claims 1-3, Yu discloses a "video shot transition detection system comprising of an input video source consisting of AC and DC luminance signals, a frequency decomposer connected to the video source that generates a low-resolution component consisting of a set of x by y coefficients, and a cut detector connected to the frequency decomposer and input video source" (Yu: page 203, figure 7).

Regarding claims 4 and 5, Yu discloses "a frequency decomposer that employs a Haar wavelet decomposition" (Yu: page 203, figure 7).

Regarding claims 6 and 11, Yu discloses "a cut threshold generator, difference signal generator, a summer, linear signal generator, and a comparator" (Yu: pages 203-204, equations 9-12, and figure 9).

Regarding claim 7, Yu discloses a weighting function (Yu: page 203, section 4.3-line5).

Regarding claims 8-9, Yu discloses a frequency decomposer that generates a high-resolution component and a cut detector that identifies a pair of cuts (Yu: page 204, figure 9).

Regarding claim 10, Yu discloses a fade detecting procedure that identifies a fade using the high-resolution component (Yu: page 203, figure 7).

Regarding claim 12, Yu displays a linearly decreasing signal (Yu: page 204, figure 8).

Regarding claim 13, Yu discloses a dissolve detection procedure that identifies dissolves using the high and low-resolution component.

Regarding claims 14-17, Yu discloses a system which identifies starting and ending points of a dissolve, a difference, summing, and smoothing apparatus, and employs a double chromatic difference algorithm (Yu: pages 202-204, equations 9-12, and figure 9).

Regarding claims 21-22, note the examiners rejection for claims 1-17.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 6-10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Niikura et al. (5911008), (hereinafter referred to as "Niikura") in view of Hewlett et al. (5508750), (hereinafter referred to as "Hewlett") in further view of Jafarkhani et al. (6542619), (hereinafter referred to as "Jafarkhani").

Regarding claims 1-2 and 10, Niikura discloses an apparatus that detects shot boundaries in compressed video data (Niikura: column 1, lines 8-12). This apparatus comprises a "video source that provides a video sequence that includes a plurality of frames" (Niikura: figure 8, item 80, wherein the data is

inputted from the video source), "frequency decomposer that generates low frequency components and high frequency components" (Niikura: column 18, lines 4-18, figure 15, wherein the DC component is the low frequency component. A high frequency component (AC) is generated, but Niikura chooses to only use the low or "DC" component), and a "cut detector" (Niikura: column 18, lines 43-44, wherein the shot boundary is the cut detector). Although Niikura does show a cut detector that identifies a cut using two adjacent I frames, Niikura fails to show using two adjacent frames as disclosed. Niikura also fails to show a fade detector that identifies a fade transition using the high frequency signature for a sequence of frames. Hewlett teaches that low frequencies will be less affected by motion than spatial values thus reducing false scene cut detection (Hewlett: column 4, lines 26-38). Hewlett further discloses comparing these low frequency values on a frame-to-frame basis to detect a scene cut (Hewlett: column 4, lines 26-38). Jafarkhani teaches that prior art approaches that detect scene changes are relatively complex and time-consuming (Jafarkhani: column 1, lines 34-38). To help alleviate this problem Jafarkhani discloses an apparatus that detects scene changes and a subset of scene changes (fades) using a high frequency signature (Jafarkhani: column 3, lines 1-44, wherein the high frequency signature is the high frequency component). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to take the apparatus disclosed by Niikura, add the low frequency comparison taught by Hewlett, and add the fade detection taught by Jafarkhani in

order to obtain an apparatus that more efficiently finds scene cuts by reducing the false scene cut detection.

Regarding claim 3, Niikura discloses that the input is a "compressed image data sequence" (Niikura: column 14, lines 45-47) that has an AC and DC luminance signal ("extracting the DC component of the DCT coefficients") (Niikura: column 20, lines 45-47).

Regarding claim 4, Niikura discloses an apparatus having a frequency decomposer comprising of a discrete Cosine transformation (DCT) (Niikura: column 18, lines 6-7).

Regarding claim 6, Niikura discloses a means for calculating a difference signal, and then comparing the difference signal to a threshold value to determine if a shot boundary or "cut detector" exists (Niikura: figure 25).

Regarding claim 7, Niikura discloses that it is "possible to vary these weights and thresholds" (Niikura: column 16, lines 12-15).

Regarding claim 8, Niikura discloses that he uses a discrete Cosine transformation (DCT) (Niikura: column 18, lines 6-7). A high frequency component (AC) is generated, but Niikura chooses to only use the low or "DC" component.

Regarding claim 9, Niikura discloses a shot boundary or "cut" detector that identifies the first and second cut transitions (Niikura: figure 28).

Regarding claim 13, the examiner notes that a "dissolve" falls into a category between a fade-in, fade-out, and scene change effect.

1. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Niikura et al. (5911008), (hereinafter referred to as "Niikura") in view of Hewlett et al. (5508750), (hereinafter referred to as "Hewlett") in further view of Brechner et al. (6477269), (hereinafter referred to as "Brechner").

Regarding claim 21, note the examiners rejection for claim 1 and in addition, claim 21 differs from claim 1 in that claim 21 further requires frequency decomposition employing wavelet decomposition using a Haar transform. Brechner teaches that a Haar transform is simple to implement and provides fast computations (Brechner: column 6, lines 11-20). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to take the apparatus disclosed by Niikura in view of Hewlett and add the Haar transform taught by Brechner in order to obtain an apparatus that is easily implemented and performs fast computations.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dave Czekaj whose telephone number is (571) 272-7327. The examiner can normally be reached on Monday - Friday 9 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on (571) 272-7331. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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